

## COMPUTER METHOD AND APPARATUS FOR DETERMINING STATE OF PHYSICAL PROPERTIES IN A CHEMICAL PROCESS

### ABSTRACT OF THE DISCLOSURE

- Computer method and apparatus determines state of physical properties, i.e.
- 5 product quality, of a chemical manufacturing process. A steady state modeler provides a rigorous steady state model of the process and instantaneous state of physical properties. An estimator or inferential sensing member determines state of the physical properties over time based on the steady state (instantaneous) values of the physical properties. To that end, a dynamic model of the subject process is formed from the
  - 10 steady state model. The computer method and apparatus may be part of a network such that laboratory and sensor measured process data is made accessible by the steady state modeler and the estimator, and the estimator provides process parameter values for maintaining state of the physical properties. The network also enables online and user-interactive access to the steady state model, the dynamic model and/or the parameter
  - 15 values for enabling control of the subject process.